

- Sub 1827*
1. An exercise monitoring system, comprising:
 - (a) an electronic positioning device;
 - (b) a physiological monitor; and
 - (c) a display unit configured for displaying data provided by said electronic positioning device and said physiological monitor.

2. The exercise monitoring system of claim 1, wherein said electronic positioning device is configured to receive electromagnetic signals from three or more sources so that said monitoring system can determine at least one of a subject's location, altitude, velocity, pace, and distance traveled.

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3. The system of claim 2, wherein said electronic positioning device comprises a GPS device.

4. The system of claim 1, wherein said physiological monitor is chosen from the group consisting of: an oximeter and a heart rate monitor.

5. The system of claim 4, wherein said electronic positioning device comprises a GPS device.

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6. The system of claim 3, wherein said GPS device and said physiological monitor are provided as part of a user-wearable data acquisition unit which is separate from said display unit.

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7. The system of claim 6, wherein said data acquisition unit further comprises a support member, and said GPS device and said physiological monitor are provided on said support member.

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8. The system of claim ~~7~~⁶, wherein said GPS device and said physiological monitor are removably secured to said support member.

9. The system of claim 6, wherein said data acquisition unit is configured to be worn about a human user's waist.

10. The system of claim 6, wherein said data acquisition unit is configured to be worn about a human user's chest.

11. The system of claim 1, wherein said display unit is configured to be worn about a human user's wrist.

12. The system of claim 1, wherein said display unit is configured to be mounted to a bicycle.

13. The system of claim 1, wherein said display unit is configured to be worn about a human user's wrist.

14. The system of claim 1, wherein said physiological monitor includes a probe configured for acquiring physiological data from a user.

15. The system of claim 4, wherein said physiological monitor comprises an oximeter.

16. The system of claim 4, wherein said physiological monitor comprises a heart rate monitor.

17. The system of claim 1, wherein said system further comprises an alarm which is activated when data provided by at least one of said electronic positioning device and said physiological monitor does not meet a predetermined target.

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18. An exercise monitoring system, comprising:

- (a) an electronic positioning device configured to receive electromagnetic signals from three or more sources so that said monitoring system can determine a subject's velocity or pace;
- (b) a display unit configured for displaying data provided by said electronic positioning device; and
- (c) an alarm, wherein said alarm is activated when a subject's velocity or pace does not meet a predetermined target.

19. An exercise monitoring system, comprising:

- (a) an oximeter configured to determine a subject's blood oxygen level;
- (b) a display unit configured for displaying the subject's blood oxygen level; and
- (c) an alarm, wherein said alarm is activated when the subject's blood oxygen level does not meet a predetermined target.

20. A method of controlling a subjects physical activity, comprising:

- (a) monitoring a subject's blood oxygen level while the subject performs a physical activity; and
- (b) maintaining said blood oxygen level at a selected level while the subject continues to perform said physical activity.

21. The method of claim 20, wherein said blood oxygen level is maintained at said selected level by adjusting the workload of said physical activity as necessary.

22. The method of claim 20, wherein said blood oxygen level is maintained at said selected level by adjusting the subject's level of exertion as necessary.

23. The method of claim 20, wherein said blood oxygen level is maintained at said selected level by adjusting the subject's oxygen intake as necessary.
24. The method of claim 20, wherein said physical activity is chosen from the group consisting of: walking, running, swimming, bicycling, skating, singing, skiing, boating, climbing, wheelchairs, snowshoeing, scuba diving, and flying.
25. The method of claim 20, wherein said step of monitoring blood oxygen level comprises:
- (a) providing an oximeter, said oximeter including a probe for non-invasively determining blood oxygen level; and
 - (b) positioning said probe on said subject at a location suitable for detecting the subject's blood oxygen level.
26. The method of claim 25, wherein said probe is positioned such that said oximeter determines the subject's systemic blood oxygen level.
27. The method of claim 25, wherein said location is chosen from the group consisting of the subject's back, head, arm, leg, chest and torso.
28. The method of claim 26, wherein said location comprises the subject's lower back.
29. The method of claim 25, wherein said probe is provided on a support member worn about the subject's waist.
30. The method of claim 20, wherein said subject is chosen from the group consisting of: humans, horses, dogs, camels, and other mammals.

31. The method of claim 20, wherein said selected level comprises a range.
32. The method of claim 20, further comprising the step of maintaining said blood oxygen level at a second selected level.
33. The method of claim 20, further comprising the steps of sequentially maintaining said blood oxygen level at multiple selected levels.
34. The method of claim 33, wherein said blood oxygen level is maintained at each selected level:
- (a) for a predetermined period of time;
 - (b) until the subject has advanced a predetermined distance; or
 - (d) until the subject has performed a predetermined amount of work.
35. The method of claim 20, wherein said selected level is chosen on the basis of blood oxygen data previously obtained while said subject performed a physical activity.
36. The method of claim 20, wherein said selected level is chosen on the basis of said subject's lactate threshold.
37. The method of claim 20, wherein said selected level is chosen on the basis of the duration of said physical activity.
38. The method of claim 20, further comprising the step of providing an alarm, said alarm configured for indicating when the subject's blood oxygen level is not at said selected level.
39. The method of claim 20, further comprising the step of providing a display unit configured for displaying the subject's blood oxygen level.

40. The method of claim 39, wherein said subject comprises a human, and said display unit is positioned so that the blood oxygen level displayed by said display unit can be viewed by said subject.
41. The method of claim 39, wherein said display unit is positioned so that the blood oxygen level displayed by said display unit can be viewed by someone other than said subject.
42. The method of claim 40, wherein said display unit is worn on the subject's wrist.
43. The method of claim 40, wherein said physical activity comprises bicycling, and said display unit is attached to the subject's bicycle so as to be visible to the subject.
44. The method of claim 40, wherein said physical activity comprises walking or running on a treadmill, and said display unit is provided on said treadmill.
45. The method of claim 20, further comprising the step of measuring at least one of the subject's velocity, pace, or distance traveled.
46. The method of claim 45, wherein said measuring step comprises: providing a GPS device operable for measuring at least one of the subject's velocity, pace or distance traveled.
47. The method of claim 45, further comprising the step of providing a display unit configured for displaying the subject's blood oxygen level, and at least one of the subject's velocity, pace or distance traveled.

48. A method of reducing a subject's blood oxygen level variability while the subject performs a physical activity, comprising:
- (a) periodically measuring a subject's blood oxygen level while said subject performs a physical activity; and
 - (b) adjusting the manner in which said physical activity is performed in order to reduce blood oxygen level variability.
49. A method of performing a physical activity, comprising:
- (a) monitoring a subject's blood oxygen level while said subject performs a physical activity; and
 - (b) indicating to said subject the time variability of the subject's blood oxygen level.
50. The method of claim 49, wherein said time variability comprises the standard deviation of the subject's blood oxygen level.
52. A method of determining a fitness indicator of a subject, comprising:
- (a) recording a subject's blood oxygen level while the subject performs a physical activity;
 - (b) varying the subject's workload while continuing to record the subject's blood oxygen level; and
 - (c) determining a fitness indicator of said subject on the basis of the recorded blood oxygen data.
53. The method of claim 52, wherein said fitness indicator comprises the subject's lactate threshold.
54. The method of claim 53, wherein said step of varying the subject's workload comprises periodically increasing the subject's workload.

55. The method of claim 52, further comprising the steps of providing a GPS device operable for measuring the subject's velocity, and determining the subject's workload using velocity measurements provided by said GPS device.
56. The method of claim 55, wherein said GPS device is further operable for measuring the subject's altitude, and wherein the subject's workload is determined using velocity and altitude measurements provided by said GPS device.
57. A method of stabilizing blood oxygen levels while exercising, comprising:
- (a) monitoring the level of blood oxygen while exercising;
 - (b) adjusting breathing while continuing to exercise in order to stabilize the level of blood oxygen.
58. A method of comparing an individual's physical fitness to their physical fitness on a previous occasion, comprising:
- (a) measuring an individual's blood oxygen level while the individual performs a physical activity at a predetermined workload; and
 - (b) measuring said individual's blood oxygen level on a subsequent occasion while the individual performs said physical activity.

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